



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,712	03/02/2007	John Patrick O'Donnell	066079-5135	8734

9629 7590 11/18/2010  
MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER
----------

NGUYEN, VU ANH

ART UNIT	PAPER NUMBER
----------	--------------

1762

MAIL DATE	DELIVERY MODE
-----------	---------------

11/18/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/581,712	O'DONNELL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Vu Anh Nguyen	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8-11,16-18 and 21-29 is/are rejected.
- 7) ☒ Claim(s) 6,7,12-15,19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/05/2006, 03/02/2007, 10/06/2010</u> .                      | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Please note that this application is now being examined by Examiner Vu Anh Nguyen.

#### ***Election/Restrictions***

1. The restriction requirement as set forth in the Office action dated 08/06/2010 is withdrawn. All pending claims, i.e., claims 1 and 3-29, will now be examined on the merits.

#### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Polymer-encapsulated materials.

#### ***Claim Objections***

3. Claim 19 is objected to because of the following informalities: The "the" in line 1 should be deleted (and replaced by "a") to avoid a rejection based on lack of an antecedent basis. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitations "the modified particulate solids" and "the compound" recited in this claim lack sufficient antecedent bases.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 3-5, 8-11, 16, 18, 21, 22 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (US 2004/0176498).

9. Regarding the limitations set forth in these claims, Ando et al. (Ando, hereafter) discloses an aqueous inkjet ink composition comprising a colored microparticle dispersion, which is prepared by a method comprising the following steps: (i) a polymer (dispersant) and a colorant are mixed with organic solvents to be emulsify-dispersed [0085], (ii) the solvents are then removed and water is added, together with a cross-linking agent, to form an aqueous dispersion, (iii) the polymer is cross-linked using the cross-linking agent, preferably at a temperature of 40-90°C if a short reaction time is desired [0101], and (iv) more monomers, and subsequently a cross-linking agent, are added to the (seed) dispersion obtained in step (iii) followed by polymerization to form a

Art Unit: 1762

cross-linked polymeric shell encapsulating the seed particle obtained in step (iii) [0105-0106]. (Note that the process recited in claim 1 does not preclude further steps. The prior art process comprised of steps i-iii reads on the claimed process as will be further clarified now). Several modes of cross-linking are taught [0037-0052]. One of those modes is a reaction between a keto group (on the polymer) and a hydrazide cross-linking agent, wherein said keto group may come from such monomer as diacetone acrylamide [0051]. The colorant includes pigments [0080]. The cross-linking agent is apparently soluble in water (i.e., the liquid medium for the cross-linking reaction) as implied by the use of diethylenetriamine and 3-aminopropanol in one example [0101]. The ink contains water as a major component and an organic solvent (which also serves as a humectant) in an amount of 0.5-50 wt% relative to the ink [0132]. In all likelihood, the water and solvent are used in a weight ratio that overlaps well the ratio set forth in claim 24. Method inkjet printing on such substrate as paper is further disclosed [0137-0139]

10. Clearly, Ando teaches all the limitations set forth in these claims but fails to exemplify the keto functional dispersant-hydrazide crosslinking agent pigment encapsulation process. Nevertheless, since said method is given equal footing with other disclosed methods (such as isocyanate-containing polymer with primary amine crosslinker, epoxide-functional polymer with amine crosslinker, and carboxyl-functional polymer with oxazoline crosslinker), it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have employed any of the disclosed crosslinking modes, including the keto-hydrazide mode, in the prior art

Art Unit: 1762

encapsulation process as these modes are functionally equivalent and can be used interchangeably.

11. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando as applied to claim 22 above, and further in view of Ma et al. (US 5,085,698).

12. Ando fails to teach a viscosity of the aqueous inkjet ink.

13. Ma et al. (Ma, hereafter) teaches an aqueous pigmented inkjet ink composition comprising an aqueous scarier medium and pigment particles dispersed by a block copolymer, wherein the ink gives images having good print quality, water and swear resistance, lightfastness, and storage stability (abstract). Ma also teaches that

**[Motivation]** "[j]et velocity, separation length of the [ink] droplets, drop size and stream stability are greatly affected by the surface tension and the viscosity of the ink...Acceptable viscosities are no greater than 20 cP, and preferably in the range of about 1.0 cP to about 10.0 cP" (col. 10, lines 21-29).

14. In light of such teachings, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the ink composition taught by Ando by adjusting the viscosity of the ink to within the range taught by Ma so as to ensure improved jet velocity, droplet separation distance, drop size, and stream stability.

15. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando as applied to claim 22 above, and further in view of Freeman et al. (US 2002/0065347).

Art Unit: 1762

16. Ando fails to teach a binder.

17. Freeman et al. (Freeman, hereafter) teaches a water-resistance inkjet ink composition comprising a polymeric binder having an acid component, a  $T_g$  of -20 to 25°C and a particle size of 250-400 nm with a narrow particle size distribution (abstract). It is revealed that **[Motivation]** the binder, when used in an aqueous inkjet ink composition [0016], provides extraordinary properties to the ink such as good adhesion to a substrate without wet-rub or dry smear, good highlighter resistance without causing increased printhead maintenance problems due to clogging, kogating and other malfunctioning of the nozzles [0015].

18. In light of such benefits, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the ink composition taught by Ando by incorporating an ink binder such as the one taught by Freeman in order to improve the water and smear resistance properties of the ink without affecting the jettability/printability of the ink.

***Allowable Subject Matter***

19. Claims 6, 7, 12-15, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: The limitations set forth in these claims are not taught or made obvious by Ando.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Anh Nguyen whose telephone number is (571)270-5454. The examiner can normally be reached on M-F 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vu Anh Nguyen  
Examiner  
Art Unit 1762

/David Wu/  
Supervisory Patent Examiner, Art Unit 1796